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MINISTRY OF SCIENCE AND HIGHER EDUCATION OF THE RUSSIAN FEDERATION

Federal State Autonomous Educational Institution of Higher Education

"Moscow Polytechnic University"

APPROVE
Vice-President
for International Affairs
_____ /Yu.D. Davydova/
"15" февраля 2024

Dean of the Faculty
of Economics and Management
_____ /A.V. Nazarenko/
"15" февраля 2024

WORKING PROGRAM OF THE DISCIPLINE

"Digital literacy"

Field of study
38.03.02 Management

Educational program (profile)
"Business Process Management"

Qualification (degree)
Bachelor

Form of study
Part-time

Moscow 2024

Developer(s):

Art. teacher of the department

"Informatics and information technologies"  A.M. Demidova

Agreed:

Head of the department

"Informatics and information technologies", Ph.D.  E.V. Bulatnikov

Head of the Department of Management, Ph.D., Associate Professor  E.E. Alenina

1. List of planned results of studying the discipline, correlated with the planned results of masteringeducational program

As part of mastering the main professional educational program of a bachelor's degree, the student must master the followinglearning outcomes in the discipline Digital Literacy:

Direction of training	Code computer tendencies	Name of competency	Indicators of achievement competencies
03/13/01 Thermal power engineering and heating engineering 03.13.02 Electric power and electrical engineering 03/13/03 Power engineering	OPK-1	Able to understand the principles of operation of modern information technologies and use them to solve problems professional activity	IOPK-1. Knows the basicsinformation technologies IOPK-2. Able to perform practical work on computer setup technology IOPK-3. Owns skills to work with applied software providing
03/08/01 Construction	OPK-2		
01.03.02 Applied mathematics and computer science 11.03.01 Radio engineering 03/15/01 Mechanical engineering 03/15/03 Applied mechanics 03/15/04 Automation of technological processesand production 20.03.01 Technosphere safety 03.23.03 Operation of transport and technological machines and complexes 03.29.03 Technology of printing and packaging production 03.29.04 Technology of artistic processing of materials	OPK-4		
03/16/03 Refrigeration, cryogenic equipment and life support systems	OPK-5		

03/15/05 Design and technological supportfor machine-building industries 03/38/01 Economics 38.03.02 Management 03.38.03 Personnel management 42.03.01 Advertising and public relations	OPK-6		
42.03.02 Journalism03/42/03 Publishing 54.03.01 Design			
03.27.02 Quality management 03.27.05 Innovation	OPK-7		
03.22.01 Materials science and materials technology 22.03.02 Metallurgy	OPK-8		
03.27.01 Standardization and metrology	OPK-9		
03.27.04 Management in technical systems	OPK-11		
03/19/01 Biotechnology	OPK-2	Able to search, store, process and analyze professional information from various sources and databases, present it in the required format using information, computer and network technologies, including calculations and modeling, takinginto account the basic requirements of information security	

2. The place of discipline in the structure of the BRI

The academic discipline Digital Literacy belongs to the mandatory part of cycle B.1"Disciplines (modules)".

3. The volume of the discipline in credit units, indicating the number of academichours allocated for contact work between students and the teacher (by type classes) and for independent work of students

The total labor intensity (volume) of the Digital Literacy discipline is 2 credit units.

Volume of discipline by type of training (in hours)
Part-time education

Type of educational work	Total hours	Semesters 1
Classroom lessons (total)	**14**	14
Including:	-	-
Lectures	6	6
Practical exercises (PL)	8	8
Seminars (C)	-	-
Laboratory work (LR)	-	-
Independent work (total)	**58**	58
Including:		
Preparation for practical classes	38	38
Testing	20	20
Type of intermediate certification - test	-	-
Total labor intensity hour / credit. units	**72/2**	72/2

4. Contents of the discipline

4.1. Sections of the discipline and labor intensity by type of training sessions

Part-time education

No. p/p	Section/topic disciplines	General labor (in hours)	Types of training sessions, including independent work of students, hour		
			Contact work		Self-employed good job students
		Total	lectures	practical classes	
1.	Story information technologies	6	-	-	6
2.	Hardware component of a modern computer	8	1	1	6
3.	Peripheral devices	7	-	1	6
4.	Modern OS	8	1	1	6
5.	Web technologies in modern world	8	1	1	6
6.	Mobile systems	8	1	1	6

7.	Alternative office software	8	1	1	6
8.	Multimedia	8	1	1	6
9.	Cybersecurity	7	-	1	6
10.	Future information technologies	4	-	-	4
10.	Future information technologies	4	-	-	4
Total		**72**	**4**	**4**	**64**
Test		**-**	**-**	**-**	**-**
Total		**72**	**4**	**4**	**64**

(Vhours)

4.2. Contents of discipline sections

Topic 1. History of information technology

- history of information technology before computers;
- device and generations of computers;
- development of programming languages and technologies;
- emergence and development of individual information technologies.

Topic 2. Hardware components of a modern computer

- components of a computer/laptop, their characteristics;
- connectors on the motherboard, their purpose;
- principles for selecting hardware components;
- causes of overheating and malfunction, ways to eliminate them;
- additional resources for comparing different characteristics.

Topic 3. Peripherals

- monitors, keyboard, mouse, their characteristics;
- devices for scanning and printing, their characteristics;
- concept of drivers, their purpose and installation;
- network equipment, basic principles of installation and configuration;
- USB hubs.

Topic 4. Modern operating systems.

- overview of the Windows operating system;
- overview of the MacOS operating system;
- general information about the Linux family;
- installation and configuration of AstraLinux;
- general principles of working with AstraLinux.

Topic 5. Web technologies in the modern world

- understanding of the principles of operation of modern websites, errors that occur and ways to eliminate them;
- cloud solutions as the basis of modern business;
- online tools for working with documents, photos and videos;
- the concept of VPN and its purpose.

Topic 6. Mobile systems

- mobile operating systems, their features, advantages and disadvantages;

• main characteristics of smartphones;
• application stores for smartphones;
• setting up a smartphone;
• review of useful software for smartphones (office, audio, video).

Topic 7. Alternative office software
• review of free alternatives to Microsoft Office;
• getting to know OnlyOffice;
• working with text documents in OnlyOffice;
• working with spreadsheet documents in OnlyOffice;
• working with presentations in OnlyOffice.

Topic 8. Multimedia
• familiarity with multimedia content, its types and purpose;
• free software for preparing multimedia content;
• the art of creating presentations.

Topic 9. Cybersecurity
•the concept of viruses and the fight against them;
• social engineering and counteraction to it;
• practice of working with passwords and two-factor authentication;
• security on the Internet.

Topic 10. The future of information technology
• stages of development of information technologies;
• classification of information technologies;
• the most promising areas of information technology:
- IT in the social sphere, medicine; machine
- learning, robotics; augmented and virtual reality
- technologies; cloud technologies.
-

4.3. Topics of practical/laboratory classes

Practical lesson 1. Testing on the topic “History of Information Technologies”. Practicallesson 2. Testing on the topic “Hardware components of a modern computer.”

Practical lesson 3. Testing on the topic “Peripheral devices”. Practical lesson 4. Testing on the topic “Modern operating systems”. Practical lesson 5. Testing on thetopic “Web technologies in the modern world.” Practical lesson 6. Testing on the topic “Mobile systems”.
Practical lesson 7. Testing on the topic “Alternative office software.”

Practical lesson 8. Testing on the topic “Multimedia”. Practicallesson 9.
Testing on the topic “Cybersecurity”.
Practical lesson 10. Testing on the topic “The Future of Information Technologies.”

5. Educational, methodological and information support of the discipline

5.1. Main literature

1. Basics of cybersecurity. Standards, concepts, methods and means of support / A. I.Belous, V. A. Solodukha. — Moscow: Technosphere, 2021. — 482 p. - ISBN 978-5-94836-612-8. - Text: electronic // Digital educational resource IPR SMART: [site]. —— URL: https://www.iprbookshop.ru/108023.html

2. Modern operating systems [Electronic resource]: textbook / Nazarov S.V., Shirokov A.I. —Electron. text data.— M.: Internet University of Information Technologies (INTUIT), IPAr Media, 2024.— 351 p.— Access mode: https://ipr-smart.ru/133980.— IPR SMART

3. Application software. MS Word and Excel: textbook / S. V. Samuylov, S. V. Samuilova. -Moscow: IP Ar Media, 2023. - 95 p. — ISBN 978-5-4497-1992-8. — Text: electronic // Digital educational resource IPR SMART: [website]. — URL: https:// www.iprbookshop.ru/126618.html
4. Information security and information protection: textbook / A. P. Martynov, I. A. Martynova, A. A. Rusakov. — 2nd ed. - Moscow: IP Ar Media, 2024. - 130 p. —— ISBN 978-5-4497-2349-9. — Text: electronic // Digital educational resource IPR SMART:[website]. — URL: https://www.iprbookshop.ru/134185.html

5.2. additional literature

5. Basics of working in Photoshop: tutorial /. — 3rd ed. — Moscow: Internet University of Information Technologies (INTUIT), IP Ar Media, 2021. — 1380 p. —— ISBN 978-5-4497-0896-0. — Text: electronic // Digital educational resource IPR SMART:[website]. — URL: https://www.iprbookshop.ru/102034.html
6. Morgunov, A.V. Management of Web technologies, services and content: textbook / A.V. Morgunov. — Novosibirsk: Siberian State University of Telecommunications andInformatics, 2021. — 88 p. — Text: electronic // Digital educational resource IPR SMART: [website]. — URL: https://www.iprbookshop.ru/125280.html

7. Fundamentals of information security in modern information systems: textbook / N. Yu. Babanov, A. A. Evstifeev, A. P. Martynov [etc.]. - Sarov: Russian Federal Nuclear Center - VNIIEF, 2022. - 175 p. — ISBN 978-5-9515-0491-3. — Text: electronic // Digitaleducational resource IPR SMART: [website]. — URL: https://www.iprbookshop.ru/ 132622.html

5.3. Licensed and freely distributed software

1. Licensed software: Microsoft Windows 11, Microsoft Office (under the MicrosoftImagine free access program).

5.4. Modern professional databases and information reference systems

1. Legal reference system “ConsultantPlus: Non-commercial Internet version” https:// www.consultant.ru/online/
2. Official Internet portal of legal informationhttp://pravo.gov.ru
3. Russian National Library http://www.nlr.ru
4. EBS “IPR” https://www.iprbookshop.ru/
5. Onewindow for accessing educational resources Federal portal http://window.edu.ru
6. Scientific electronic libraryhttp://www.elibrary.ru
7. Russian State Libraryhttp://www.rsl.ru

5.5. Electronic educational resources

An electronic educational resource on the discipline is under development.

6. Logistics support for discipline

1. Computer classes with equipment: tables, chairs, blackboard, use of a portable multimedia complex (portable projector, personal laptop). Personal computers,monitors, mice, keyboards. Teacher's workplace: table, chair.

2. Audience for independent work.
3. Library, reading room.

7. Methodological recommendations for organizing the study of the discipline

7.1. Methodological recommendations for the teacher

This section of this work program is intended for beginning teachers and practitioners who do not have teaching experience.

The methodology for teaching the discipline Digital literacy and the implementation of a competency-based approach in the presentation and perception of material involves the use of an online course in the University's distance learning system,group and individual consultations of students in order to form and develop general professional skills.

The detailed content of individual sections of the Digital Literacy discipline is discussedin paragraph 4.2 of the work program.

Options for test tasks for current and intermediate control in the discipline are presented as part of the FOS for the discipline in paragraph 8 of this work program.

The list of basic and additional literature, databases and information referencesystems necessary in the course of teaching the discipline Digital Literacy is given in paragraph 5 of this work program.

7.2. Guidelines for students

Obtaining in-depth knowledge in the discipline is achieved through active independent work of students. It is advisable to use the allocated hours to get acquainted with educational and scientific literature on the problems of the discipline, and analyze scientific concepts.

Interim certification of students in the form of a test is carried out based on the results of completing all types of academic work provided for by the curriculum for a given discipline (module), while taking into account the results of ongoing monitoring of progress during the semester. Assessment of the degree to which students have achieved the planned learning outcomes in the discipline is carried out by the teacher conducting classes in the discipline usingthe method of expert assessment. Based on the results of the intermediate certification for the discipline, a grade of "pass" or "fail" is assigned.

Only students who have completed all types of educational work provided for in the work program for the discipline Digital Literacy are allowed to take part in the intermediate certification.

8. Fund of assessment funds for the discipline

8.1. List of competencies indicating the stages of their formation in the process mastering the discipline. Forms of control over the development of competencies

Code directions preparation	Code computer tendencies	Name competencies	Indicators achievements competencies	Form control	Stages formed nia (sections disciplines)
03/13/01 03/13/02 03/13/03	OPK-1	Capable of understanding work principles modern information technologies and use them for problem solving professional activities	IOPK-1. Knows basics information technologies IOPK-2. Can fulfill practical work on at a construction site computer technology IOPK-3. Owns work skills	Intermediate ny control :test Current control : testing	Topics 1-10
03/08/01	OPK-2				
01.03.02 11.03.01 03/15/01 03/15/03 03/15/04 20.03.01 03/23/03 03/29/03 03/29/04	OPK-4				
03/16/03	OPK-5				

03/15/05 03/38/01 38.03.02 03/38/03 03/42/01 03/42/02 03/42/03 03/54/01	OPK-6		with applied software providing		
03/27/02 03/27/05	OPK-7				
22.03.01 03/22/02	OPK-8				
03/27/01	OPK-9				
03/27/04	OPK- eleven				
03/19/01	OPK-2	Capablerealize search, storage, processing and analysis professional information from various sources and databases data, present it torequired format with using informational, computer and network technologies, including carrying out calculations and modeling, with taking into account the main requirements informational security			

8.2. Indicators and criteria for assessing competencies when studying the discipline, description of rating scales

8.2.1. Criteria for assessing the answer to the test

(formation of competence, indicators IOPK-1, IOPK-2, IOPK-3)

"passed":

the student demonstrates systematic theoretical knowledge, practical skills, knowsterms, makes reasoned conclusions and generalizations, gives examples, shows fluency in monologue speech and the ability to quickly respond to clarifying questions.

the student demonstrates solid theoretical knowledge, practical skills, knowsterms, makes reasoned conclusions and generalizations, gives examples,

shows fluency in monologue speech, but at the same time makes minor mistakes, whichhe quickly corrects independently or with minor correction by the teacher.

the student demonstrates shallow theoretical knowledge, shows poorly formed skills in analyzing phenomena and processes, insufficient ability to draw reasoned conclusions and give examples, shows insufficient fluency in monologue speech, terms,logic and consistency of presentation, makes mistakes that can only be corrected by correction by the teacher.

"not accepted":

the student demonstrates ignorance of the theoretical foundations of the subject,lack of practical skills, does not know how to draw reasoned conclusions and give examples, shows poor command of monologue speech, does not know the terms, showsa lack of logic and consistency of presentation, makes mistakes that he cannot correct even with correction by the teacher, refuses answer additional questions.

8.2.2. Criteria for assessing student work in practical classes

(formation of competence, indicators IOPK-1, IOPK-2, IOPK-3)

"5" (excellent):all practical tasks provided for have been completed practical classes, the student answered all test questions clearly and without errors, and activelyworked in practical classes.

"4" (good):all practical tasks included in the practical work have been completedclasses, the student answered all test questions with corrective comments from the teacher, and worked quite actively in practical classes.

"3" (satisfactory):all practical tasks provided for have been completed practical exercises with comments from the teacher; The student answered all test questions withcomments.

"2" (unsatisfactory):the student did not complete or performed incorrectly practical tasks provided for in practical classes; the student answered the test questionswith errors or did not answer the test questions.

8.2.3. Test evaluation criteria

(formation of competence, indicators IOPK-1, IOPK-2, IOPK-3) Testing is assessed in accordance with the percentage of correct answers given by the student to the test questions. Standard scale of compliance of test results with the assigned score:

- "excellent" - over 85% of correct answers; "good" - from
- 70.1% to 85% of correct answers; "satisfactory" - from
- 55.1% to 70% of correct answers; from 0 to 55% of correct
- answers – "unsatisfactory"

"5" (excellent):the test taker demonstrates systemic theoretical knowledge, ownsterms and has the ability to quickly respond to test questions.

"4" (good):the test taker generally demonstrates systemic theoretical knowledge,knows most terms and has the ability to quickly respond to test questions.

"3" (satisfactory):systemic theoretical knowledge of the test taker are absent, heknows some terms and reacts quite slowly to test questions.

"2" (unsatisfactory):systemic theoretical knowledge of the test taker are absent,he does not know terminology and responds slowly to test questions.

8.2.4. Final correspondence of the point scale of assessments and levelsformation of competencies in the discipline:

Level formation competencies	Grade	Explanation
High	passed	All types of educational work provided for educational plan. The student demonstrates correspondence knowledge, skills, and abilities declared to indicators, free operates acquired knowledge, skills, skills and applies them in situations of increased complexity.
Average	passed	All types of educational work provided for educational plan. The student demonstrates knowledge, skills and abilities to indicators, operates with skills acquired knowledge, skills and abilities. In this case, minor errors, inaccuracies, and difficulties during analytical operations and the transfer of knowledge and skills to new, non-standard situations may be made.
Satisfy telny	passed	All types of educational work provided for educational plan. The student demonstrates knowledge, skills and abilities to indicators, operates with skills acquired knowledge, skills and abilities. At the same time, the student makes mistakes and has difficulty applying skills in new situations.
Unsatisfactory telny	not accepted	One or more types of educational work provided for by the curriculum have not beencompleted. The student demonstrates incomplete compliance of knowledge, skills and abilities with the stated indicators and makes significant mistakes when operating knowledge and skills and applying acquired skills in standard situations

8.3. Methodological materials (standard test tasks) defining learning outcomes in the discipline, correlated with achievement indicators

8.3.1. Current control (work in practical classes) (formation of competence, indicators IOPK-1, IOPK-2, IOPK-3) Example of settingcurrent control:

1. A network card is needed for...
   + : connections to a computer network
   - : processing of graphic objects
   - : information storage
   - : analog signal conversion

2. The first mass programming language is...

- : C++
- : Scala
- : Java
- : Kotlin
+ : Fortran

3. ...is a new format for communicating with consumers

+ : multimedia content
- : presentations
-: website
- : performances

4. The main tool of this technology is a personal computer (PC) with a set of software forperforming tasks for various purposes

-: Mechanical IT (from the end of the 19th century to the present day)
+ : Computer IT (1980s to present)
- : Manual IT (from ancient times to the second half of the 19th century)
- : Electrical IT (1940s to 1960s)

5. In 2014, Facebook acquired Oculus VR for $2 billion, and this year they also launched asocial network with .....and VR interaction capabilities

+ : 3D avatars
- : the ability to simulate entire lives
- : neurosensitive suits
- : games

8.3.3. Intermediate control (test)

(formation of competence, indicators IOPK-1, IOPK-2, IOPK-3) Thetest is carried out in the form of computer testing.

Example of a test task for credit:

1. _____technologies – processes that use a set of means and methods for collecting, processing, accumulating and transmitting data

- : Software
+ : Informational
- : Educational
- : Computer

2. The compiler is...

- : a set of instructions for a specific performer
+ : “translators” of programs created in high-level languages into “low-level”ones
- : set of instructions for all performers
-: “translators” of programs created in “low-level” languages into high-levellanguages

3. Invented a fully automated loom, which in 1804 was capable of reproducing the mostcomplex patterns.

- : Leibniz
- : Pascal
- : da Vinci
+ : Jacquard

4. The company ..... created the first microprocessor.

- : Asus
- : DFI
- : MSI
- : IBM
+ : Intel

5 ----------images embossed or painted on a stone base

- : Hieroglyphs
- : Geoglyphs
+ : Petroglyphs
- : Phonoglyphs

6. Highlight the possible causes of the 503 Service Temporarily Unavailable error:
   + : a large number of requests to the server
   + : scripts hang when transferring large static files via PHP
   - : incorrect instruction in .htaccess file
   - : the file requested by URL is not present on the server
7. The benefits of using a VPN include:
   + : anonymity online
   + : data protection
   - : protection from unverified sites
   + : Bypass ISP restrictions
   - : Reduce network latency (ping)
   - : Increase network capacity
8. A code like 5xx (xx is a combination of any numbers) indicates that:
   - : request successfully forwarded
   - : request completed successfully
   - : a critical error occurred on the client side
   + : a critical error occurred on the server side
9. What does the 404 Not Found error mean?
   - : The server cannot fulfill the request because access to the requested files isdenied
   + : The server cannot find the data requested by the user
   - : The request resulted in an invalid response from the server
   - : There is an internal error on the server
10. Select a possible computer IP address from the options listed:
   - : 772813
   - : cl.do.bs.a
   + : 77.28.1.3
   - : vedomir.info